

KEPLER'S UNIQUE DAV

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We propose to observe and analyze KIC 4552982, so far the only known pulsating DA (hydrogen-atmosphere) white dwarf in the Kepler mission field. The target was identified as a DAV using ground-based data (Hermes et al. 2011 ApJ 741 L16), and the target has been observed through KASC since Q11. Extended Kepler observations of KIC 4552982 could yield the best light curve, to-date, of any pulsating white dwarf, allowing us to directly study the interior of an evolved object representative of the fate of the majority of stars in our Galaxy. We expect to perform precision asteroseismology, explore low-amplitude modes in a search for non-linearities and perhaps $l=3$ modes, and watch the observed modes evolve in amplitude and phase on new timescales inaccessible from the ground. We will use this unique space-based Kepler data set to leverage our understanding of the entire class of more than 150 known DAV stars.